

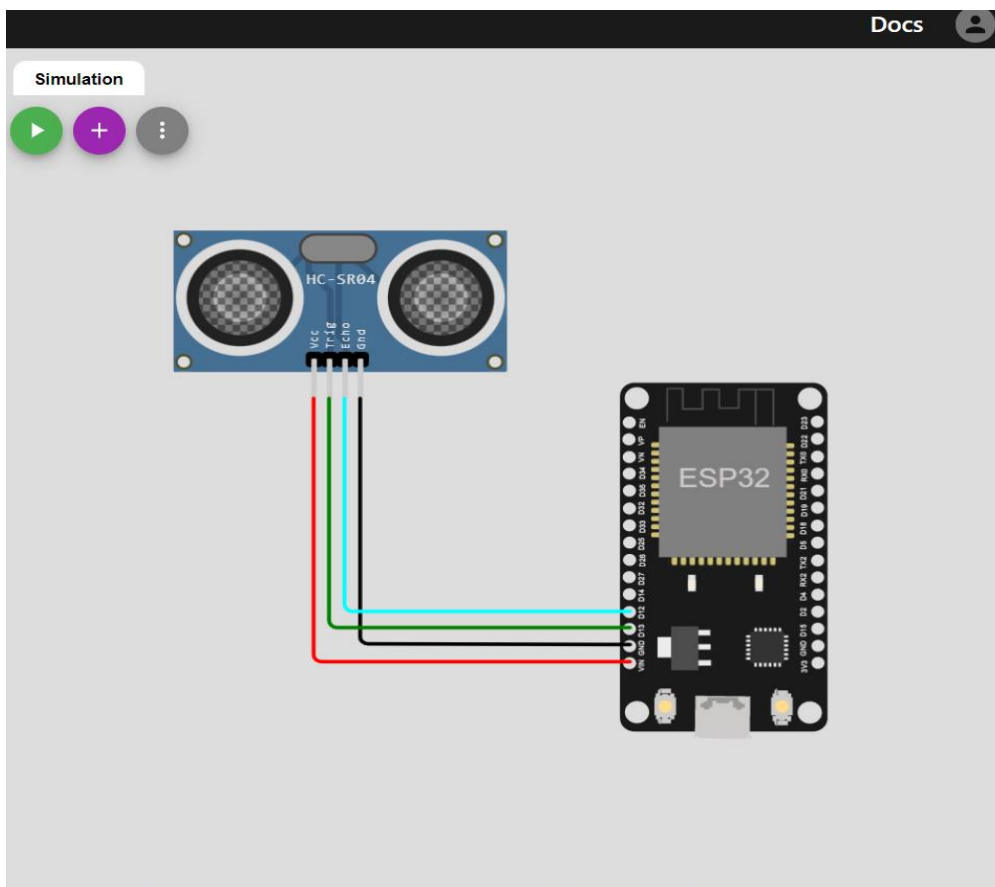
ASSIGNMENT - 4

Date	03 October 2022
Team ID	PNT2022TMID22887
Project Name	Gas leakage monitoring and alerting system
Maximum Marks	2 Marks

Objective: Write code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100 cm send an "alert" to the IBM cloud and display in the device recent events.

Wokwi Link: <https://wokwi.com/projects/347101724558754387>

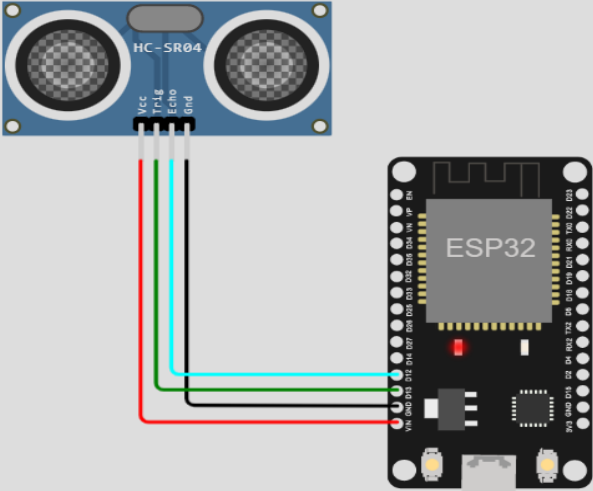
Circuit diagram:



OUTPUT:

Simulation

00:24.264 98%



```
Sending payload: {"Distance":84.95,"MESSAGE":"ALERT"}
Publish ok
Sending payload: {"Distance":84.95,"MESSAGE":"ALERT"}
Publish ok
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Publish ok
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Publish ok
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Publish ok
```

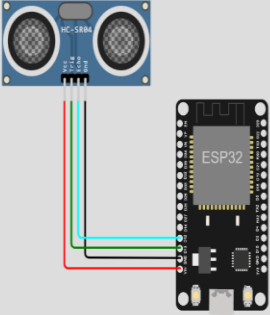
Out put with code

WOKWI SAVE SHARE Docs

sketch.ino diagram.json libraries.txt Library Manager

```
1 #include <WiFi.h> //library for wifi
2 #include <PubSubClient.h> //library for MQTT
3 #define TRIG_PIN 13
4 #define ECHO_PIN 12
5
6
7
8 void callback(char* subscribetopic, byte* payload, unsigned int payloadLength);
9
10 //-----credentials of IBM Accounts-----
11
12 #define ORG "ipetko" //IBM ORGANIZATION ID
13 #define DEVICE_TYPE "ESP32" //Device type mentioned in ibm watson IOT Platform
14 #define DEVICE_ID "12345" //Device ID mentioned in ibm watson IOT Platform
15 #define TOKEN "12345678" //Token
16
17
18 //----- Customise the above values -----
19
20 char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; // Server Name
21 char publishTopic[] = "iot-2/evt/Data/fmt/json"; // topic name and type of event perform a
22 char subscribetopic[] = "iot-2/cmd/command/fmt/String"; // cmd REPRESENT command type AND
23 char authMethod[] = "use-token-auth"; // authentication method
24 char token[] = TOKEN;
25 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //client id
26
27
28 //-----
29 WiFiClient wificlient; // creating the instance for wificlient
30 PubSubClient client(server, 1883, callback ,wificlient); //calling the predefined client
31
32
33 void setup() // configureing the ESP32
34 {
35   Serial.begin(115200);
```

Simulation



10.10.0.2

Reconnecting client to ipetk0.messaging.internetofthings.ibmcloud.com
iot-2/cmd/command/fmt/String
subscribe to cmd OK

Sending payload: {"Distance":84.95,"MESSAGE":"ALERT"}
Publish ok

Sending payload: {"Distance":84.95,"MESSAGE":"ALERT"}
Publish ok

Sending payload: {"Distance":84.98,"MESSAGE":"ALERT"}
Publish ok

IBM CLOUD

IOT WATSON DISPLAY

IBM Watson IoT Platform

?

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← Back

Device Drilldown - 12345

Client Address: 145.40.94.93 Insecure

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

Recent Events

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
Data	{"Distance":84.98,"MESSAGE":"ALERT"}	json	a few seconds ago
Data	{"Distance":84.98,"MESSAGE":"ALERT"}	json	a few seconds ago
Data	{"Distance":84.98,"MESSAGE":"ALERT"}	json	a few seconds ago
Data	{"Distance":84.98,"MESSAGE":"ALERT"}	json	a few seconds ago
Data	{"Distance":84.98,"MESSAGE":"ALERT"}	json	a few seconds ago